5(3)

AUTHORS: Ioffe, I. S., Zal'manovich, M. Z. SOV/79-29-8-52/81

TITLE: Reaction of 2,4,5-Trichlorophenol With Formaldehyde

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2685-2689 (USSR)

ABSTRACT: The chlorine derivatives of dioxy-diphenyl-methane with hydroxyl groups in ortho-position to the central methylene group are highly active disinfectants (Ref 1). The most active among them is compound (I), known under the name "G-11" or "hexachlorophenone", but its synthesis by means of condensation of formaldehyde with 2,4,5-trichlorophenol (Ref 2) has not been described in detail in publications. More thoroughly described are the syntheses of the allied compounds (II) and (III) according to reference 3. As compound (IV) is formed as an intermediate from 4-chlorophenol, compound (V) can likewise result (with excess formaldehyde). On condensation of (IV) with excess 4-chlorophenol, (III) is formed, on condensation of (V) with 4-chlorophenol, compound (VI). In Ziegler's reaction (Ref 5) of formaldehyde with 2,4-dichlorophenol, compound (VII) is primarily formed which yields with formaldehyde compound (VIII), when treated with dilute acids, or with 2,4-dichlorophenol, compound (II) (Reaction

Card 1/2

Scheme 1). An attempt of the authors to condense 2,4,5-trichlorophenol with formaldehyde, under the above-mentioned conditions, in the case of 2,4-dichlorophenol, was unsuccessful, since the 2,4,5-trichlorophenol was separated out in its original form. Further investigations of the latter showed that it exhibits a very small activity as compared with 2,4-dichlorophenol. The 2,4,5-trichlorophenol was found to react with formaldehyde only on heating in the presence of concentrated sulfuric acid. As an intermediate, 2,4,5-trichlorosaligenin (IX) is formed, which is further condensed either with excess formaldehyde under formation of compound (X), or with excess 2,4,5-trichlorophenol. In the latter case it yields, as a main product, hexachlorophene (III) in addition to other products (Reaction Scheme 2). There are 5 references, 1 of which is Soviet.

ASSOCIATION: Voyenno-meditsinskaya akademiya imeni S. M. Kirova (Military Medical Academy imeni S. M. Kirov)

SUBMITTED: July 19, 1958

Card 2/2

5.3610

77356
SOV/79-30-1-17/78

AUTHORS: Ioffe, I. S., Selezneva, N. A.

TITLE: Salts of 1-Alkyl-8-hydroxyquinoline

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 91-93 (USSR)

ABSTRACT: Condensation of 8-hydroxyquinoline with ethyl, butyl, octyl, and cetyl iodide yielded the following salts: 1-ethyl-8-hydroxyquiniline iodide, mp 129-132°; 1-butyl-8-hydroxyquinoline iodide, mp 162-164°; 1-octyl-8-hydroxyquinoline mp about 50°. It was impossible to obtain hexadecyl-8-hydroxyquinoline iodide in pure state due to coprecipitation of cetyl iodide with it. In general, all hydriodide salts of higher 1-alkyl-8-hydroxyquinolines cannot be precipitated with ether from alcohol. They precipitate in the form of a resin on dilution of their alcohol solution with water. For their purification they were treated with silver oxide; this resulted in the formation of hydroxides. The addition of picric acid yields picrates of the above salts. The list of picrates are given in Table 1.

Card 1/3

Salts of 1-Alkyl-8-hydroxyquinoline

77356
SOV/79-30-1-17/78

Table 1.

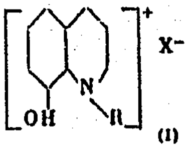
Picrates	mp	Found N (%)	Empirical formula	Calculated N (%)
1-Ethyl-8-hydroxyquinoline	186°	13.75	$C_{17}H_{14}N_4O_8$	13.90
1-Butyl-8-hydroxyquinoline	172	13.34	$C_{19}H_{18}N_4O_8$	13.00
1-Octyl-8-hydroxyquinoline	138	11.23	$C_{23}H_{26}N_4O_8$	11.55
1-Hexadecyl-8-hydroxyquinoline	112	9.70	$C_{31}H_{42}N_4O_4$	9.38

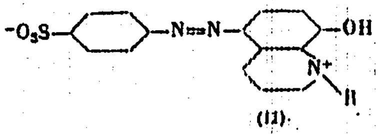
The salts of 1-alkyl-8-hydroxyquinoline react with diazonium compounds with the preservation of alkyl radical at nitrogen atom. Several (4) dyes were prepared from the above salts. The general formulas of the prepared salts and dyes are (I) and (II), respectively:

Card 2/3

Salts of 1-Alkyl-8-hydroxyquinoline

77356
SOV/79-30-1-17/78


(I)


(II)

The structure of dyes was confirmed by elemental analysis. The brown-red color of the obtained dyes becomes more intense with the increase of the length of the alkyl radical chain. There is 1 figure; 2 tables; and 5 German references.

SUBMITTED: January 9, 1959

Card 3/3

5.3610

78275
SOV/79-30-3-29/69

AUTHORS: Ioffe, I. S., Devyatova, N. I.

TITLE: N-Substituted Amides of Salicylic Acid and Its Derivatives. II. Meso-Acridylamide of Salicylic Acid

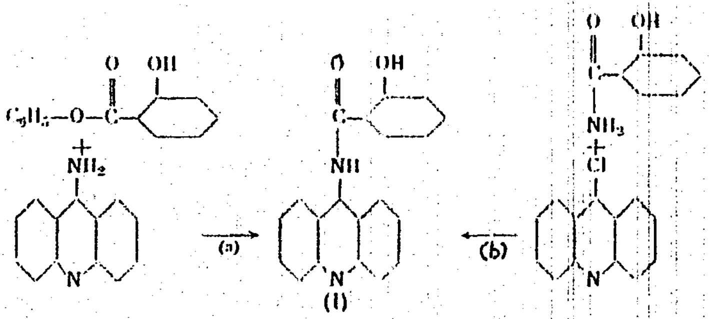
PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 3, pp 884-889 (USSR)

ABSTRACT: The reaction of salol with meso-aminoacridine yields a mixture of products from which the following three were identified: salicylic salt of meso-aminoacridine, mp 279-280°; meso-acridylamide, (I), mp 267-268°; and di-(meso-acridyl)-amine, mp 360°. The structure of (I) was confirmed by its synthesis from meso-chloroacridine and amide of salicylic acid according to scheme (b).

Card 1/5

N-Substituted Amides of Salicylic
Acid and Its Derivatives. II

78275
SOV/79-30-3-29/69



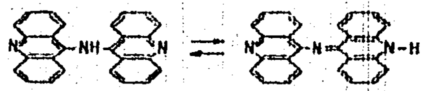
Di-(meso-acridyl)-amine forms with acids bright-red onium salts. This amine is formed as a result of secondary reaction of the formed amide with meso-aminoacridine. The structure of di-(meso-acridyl)-amine (VII) was confirmed by its synthesis from meso-chloroacridine and meso-aminoacridine. The color of this amine can be explained by possible tautomerism in its acridine rings resulting in acridoneimine structure.

Card 2/5

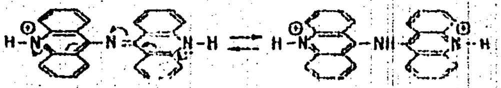
N-Substituted Amides of Salicylic Acid and Its Derivatives. II

78275
SOV/79-30-3-29/69

(VII)

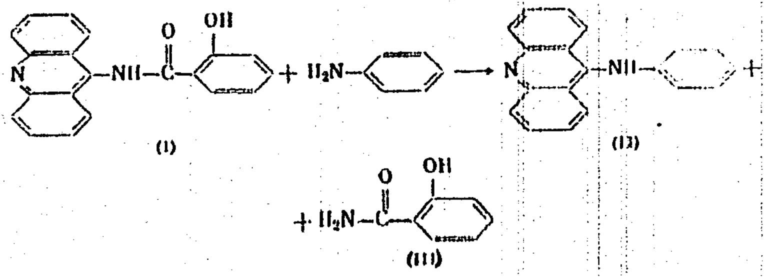


(VIII)



(IX) .

Meso-acridylamide of salicylic acid (I) reacts with other amines with elimination of salicylamide (III) and formation of corresponding substituted meso-aminoacridine (II)

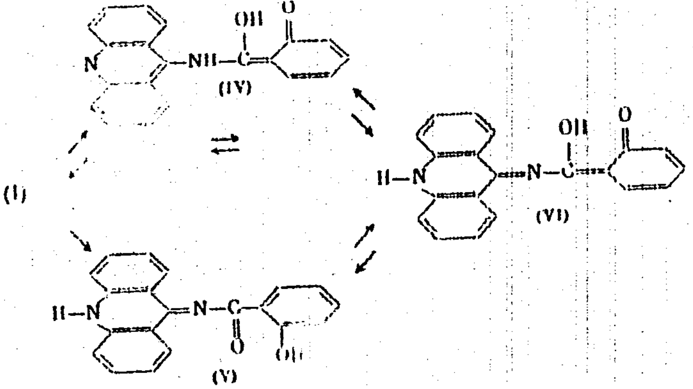


Card 3/5

N-Substituted Amides of Salicylic
Acid and Its Derivatives. II

78275
SOV/79-30-3-29/69

The authors explain the instability of the bond between nitrogen atom and meso-carbon of the acridine ring in acridylamine of salicylic acid by the mutual effect of both groups of this compound. The bright yellow color of this acyl derivative can be also explained by this phenomenon.



Card 4/5

N-Substituted Amides of Salicylic Acid and Its Derivatives. II

78275
SOV/79-30-3-29/69

There are 4 references, 1 Soviet, 2 U.K., 1 U.S. The U.S. and U.K. references are: Allen, C. T., Van Allen, J. A., Org. Snyth., 26, 92 (1946); Albert, A., Bruce Ritchil, J. Chem. Soc., 458 (1943); Dupre, D. I., Robinson, T. A., J. Chem. Soc., 549 (1945).

SUBMITTED: March 11, 1959

Card 5/5

IOFFE, I.S., prof.; OSIPYAN, V.T., kand.med.nauk

B-propiolactone, a new disinfectant. Voen.-med. zhur. no.6:52-53
Je '61. (MIRA 14:8)
(DISINFECTION AND DISINFECTANT) (LACTONES)

IOFFE, I.S.; SELEZNEVA, N.A.

N-Ethylmesoaminoacridinium salts and their conversions. Zhur. ob. khim. 31 no.1:50-53 Ja '61. (MIRA 14:1)
(Acridinium compounds)

IOFFE, I.S.; ZAL'MANOVICH, M.Z.

N-substituted amides of salicyclic acid and its derivatives. Part 3: Arylides of 5-aminosalicylic acid. Zhur. ob. khim. 31 no.1:199-201 Ja '61. (MIRA 14:1)

(Salicylic acid)

IOFFE, I.S.; OTTEN, V.F.

Rhodamine dyes and related compounds. Part 1: Original parent compound of rhodamine, its preparation and properties. Zhur.ob. khim. 31 no.5:1511-1516 My '61. (MIRA 14:5)
(Rhodamine)

IOFFE, I.S.; OTTEN, V.F.

Rhodamine dyes and related compounds. Part 2: Rhodol, its preparation and properties. Zhur.ob.khim. 32 no.4:1196-1201 Ap '62.
(MIRA 15:4)

(Rhodamine)

IOFFE, I.S.; OTTEN, V.F.

Rhodamine dyes and related compounds. Part 3: Reaction of m-aminophenol and further transformations of the condensation product. Zhur.ob.khim. 32 no.5:1477-1480 My '62. (MIRA 15:5)
(Phenol) (Phthalic anhydride) (Rhodamine)

IOFFE, I.S.; ZAL'MANOVICH, M.Z.

Rhodamine dyes and related compounds. Part 4: Aryl- and benzylrhodamines. Zhur.ob.khim. 32 no.5:1480-1485 My '62.
(MIRA 15:5)

(Rhodamine)

IOFFE, I.S.; SELEZNEVA, N.A.

Rhodamine dyes and related compounds. Part 5: α-pyridylrhodamine.
Zhur.ob.khim. 32 no.5:1485-1489 My '62. (MIRA 15:5)
(Rhodamine) (Pyridinium compounds)

IOFFE, I.S.; SUKHINA, A.F.; ZHUKOVA, Ye.N.

Rhodamine dyes and related compounds. Part 6: Chloride and amides of sulforhodamine B. Zhur.ob.khim. 32 no.5:1489-1492 My '62. (MIRA 15:5)

(Rhodamine)

IOFFE, I.S.; DEVYATOVA, N.I.; ROSKULYAK, L.A.

Sulfonic acids of fluorescein. Part 1: Condensation of sulfophthalic acids with resorcinol. Zhur.ob.khim. 32 no.7:2107-2111 Jl '62. (MIRA 15:7)
(Phthalic acid) (Resorcinol)

IOFFE, I.S.; DEVYATOVA, N.I.

Sulfonic acids of fluorescein. Part 2: Preparation of sulfophthalic acids. Zhur.ob.khim. 32 no.7:2111-2115 Jl '62. (MIRA 15:7)
(Phthalic acid) (Fluorescein)

IOFFE, I.S.; GLEBOVSKIY, D.N.; BARNAULOV, O.D.

Sulfonation and nitration of 2-(2'-hydroxyphenyl)-benzimidazole.
Zhur.ob.khim. 32 no.7:2237-2239 Jl '62. (MIRA 15:7)
(Benzimidazole) (Sulfonation) (Nitration)

IOFFE, I.S.; ZAL'MANOVICH, M.Z.

Rhodamine dyes and related compounds. Part 7: [illegible]-phenylethylrhodamines.
Zhur.ob.khim. 33 no.4:1089-1092 Ap '63. (MIRA 16:5)
(Rhodamine) (Dyes and dyeing)

IOFFE, I.S.; SUKHINA, A.F.; ZHUKOVA, Ye.N.

Rhodamine dyes and related compounds. Part 8: Amides of sulfo-rhodamine B containing N-β-hydroxy and β-chloroethyl groups.
Zhur.ob.khim. 33 no.12:3943-3946 D '63. (MIRA 17:3)

IOFFE, I.S.; SUKHOMLINOV, F.K.; LEPORSKIY, A.N.; BUKHMAN, L.B.

Preparation of β-propiolactone and its stability in aqueous solutions and in storage. Zhur.prikl.khim. 36 no.3:629-632 My '63. (MIRA 16:5)

(Hydracrylic acid)

IOFFE, I.S.; ROSKULYAK, L.A.

Fluorescein sulfonic acids. Part 3: Sulfonation of fluorescein. Zhur.ob.khim. 34 no.2:635-639 F '64. Zhur.ob.khim. 34 no.2: 635-639 F '64. (MIRA 17:3)

IOFFE, I.S.; DEVYATOVA, N.I.; GOFMAN, I.A.

Rhodamine dyes and related compounds. Part 9: Sulfonic acids of rhodamine B and their derivatives. Zhur.ob.khim. 34 no.2:640-644 F '64. (MIRA 17:3)

IOFFE, I. S.; GOFMAN, I. A.

Rhodamine dyes and related compounds. Part 10: Fluorescence of alkyl-and arylalkyl rhodamine solutions. Zhur.ob.Khim. 34 no.6:2039-2041 Je '64. (MIRA 17:7)

IOFFE, I. S.; SELEZNEVA, N. A.

Rhodamine dyes and related compounds. Part 11: Aryl-and alkyl rhodamines containing carboxyl groups at radicals. Zhur. ob. Khim. 34 no.6:2041-2044 Je '64. (MIRA 17:7)

L 15707-65 EWT(m)/EPF(c)/EWP(j) Pc-4/Pr-4 ASD-3/RPL RM

ACCESSION NR: [illegible] S/0079/64/034/008/2811/2811

AUTHORS: Ioffe, I.S., Zelenin, K.N.

TITLE: Synthesis of azafluorescein

SOURCE: [illegible] khimii, v. 34, no. 9, 1964, 2811-2811

TOPIC TAGS: [illegible] synthesis, dye, fluorane containing [illegible] dye

ABSTRACT: The synthesis of azafluorescein (compound I of enclosed [illegible] interest in comparing spectral chara- [illegible] fluorane and azafluorane [illegible] III on heating [illegible]

will be described separately. Orig. art. has: 3 formulae.

ASSOCIATION: None

Card 1/3

L 15707-65

ACCESSION NR: AP4044199

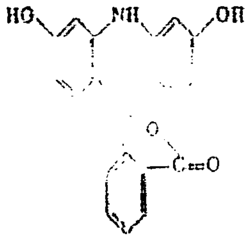
SUBMITTED: 02Apr64 ENCL: 01

SUB CODE: OC,GC NR REF SOV: 000 OTHER: 002

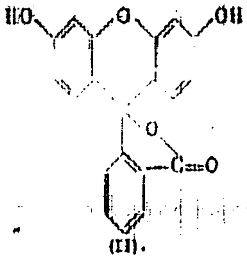
Card 2/3

L 15707-65
ACCESSION NR: AP4044199

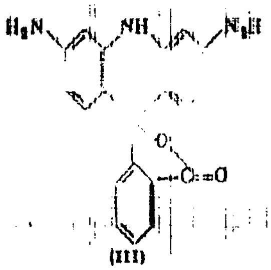
ENCL: 01



(I)



(II).



(III)

Card: 3/3

IOFFE, I.S.; ZHUKOVA, Ye.N.

Rhodamine sulfochloride. Zhur. ob. khim. 34 no.10:3510 O '64.
(MIRA 17:11)

IOFFE, I.S.; OTTEN, V.F. [deceased]

Rhodamine dyes and related compounds. Part 12: Diacetyl derivatives of rhodamine and rhodol; structure of colorless forms of fluoran dyes. Zhur.org.khim. 1 no.2:336-339 F '65.

Rhodamine dyes and related compounds. Part 13: Structure of colored forms of rhodamine and rhodol. Ibid.:340-343

Rhodamine dyes and related compounds. Part 14: Mutual conversions of colorless and colored forms of rhodamine and rhodol. Ibid.:343-346 (MIRA 18:4)

DANILOV, S.N., glav. red.; ARBUZOV, A.Ye., red.; VVEDENSKIY, A.A., red.; VENUS-DANILOVA, E.D., red.; ZAKHAROVA, A.I., red.; IOFFE, I.S., red.; KAVERZNEVA, Ye.D., red.; LUTSENKO, I.F., red.; MISHCHENKO, K.P., red.; NEMTSOV, M.S., red.; PETROV, A.A., red.; FREYDLINA, R.Kh., red.; SHEMYAKIN, M.M., red.; SHUKAREV, S.A., red.; YUR'YEV, Yu.K., red.

[Biologically active compounds] Biologicheski aktivnye soedineniia. Moskva, Nauka, 1965. 305 p. (MIRA 18:7)

IOFFE, I.S.; GOFMAN, I.A.; ZAL'MANOVICH, M.Z.

Rhodamine dyes and related compounds. Part 15: Rhodamine dyes with hydroaromatic and polymethylene radicals. Zhur.org.khim. 1 no.3:584-586 Mr '65. (MIRA 18:4)

IOFFE, I.S.; ROSKULYAK, L.A.

Sulfonic of fluorescein. Part 4: Sulfo acids of 3,6-dichlorofluoran and their derivatives. Zhur. org. khim. 1 no.4:671-673 Ap '65. (MIRA 18:11)

IOFFE, I.S.; ROSKULYAK, L.A.

Sulfonic acids of fluorescein. Part 6: Sulfonic acids of tetrabromofluorescein and their derivatives. Zhur. org. khim. 1 no.6:1032-1034 Je '65. (MIRA 18:7)

IOFFE, I.S.; SHAPIRO, A.L.

o-(3,6 dichloro-9-acridyl)benzoic acid. Zhur. org. khim. 1 no.8:1515-1516 Ag '65. (MIRA 18:11)

IOFFE, I.S.; SHAPIRO, A.L.; GOFMAN, I.A.

Rhodamine dyes and related compounds. Zhur. org. khim. 1 no. 12:
2172-2176 D '65 (MIRA 19:1)

ACC NR: AP7001381 (A,N) SOURCE CODE: UR/0413/66/000/021/0053/0054

INVENTORS: Golovanov, G. D.; Ioffe, I. S.

ORG: none

TITLE: Stand-by trigger. Class 21, No. 187834

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 21, 1966, 53-54

TOPIC TAGS: trigger circuit, transistorized circuit

ABSTRACT: This Author Certificate presents a transistorized stand-by trigger. To decrease the power requirements and to insure uninterrupted operation with damage to any of the transistors, the left branch of the trigger contains three transistors with separate collector loads. The right branch contains five transistors with a common collector load, which are connected as a majority circuit such that three "AND" circuits are interconnected as an "OR" circuit. Each collector of the transistors of the left branch is connected to the inputs of the majority circuit whose output is connected through resistors to the transistor bases of the left branch of the trigger.

SUB CODE: 09/ SUBM DATE: 16Dec65

Card 1/1 UDC: 621.374.3

DANILOV, S.N., glav. red.; ZAKHAROVA, A.I., red.; ARBUZOV, A.Ye.,
red.; VVEDENSKIY, A.A., red.; VENUS-DANILOVA, E.D., red.;
IOFFE, I.S., red.; KAVERZNEVA, Ye.D., red.; LUTSENKO,
I.F., red.; MISHCHENKO, K.P., red.; NEMTSEV, M.S., red.;
PETROV, A.A., red.; FREYDLINA, R.Kh., red.; SHEMYAKIN,
M.M., red.; SHCHUKAREV, S.A., red.; YUR'YEV, Yu.K., red.

[Problems of organic synthesis] Problemy organicheskogo
sinteza. Moskva, Nauka, 1965. 323 p. (MIRA 18:8)

GREDITOR, M.A.; PECHENKIN, V.I.; IOFFE, I.S.; BOBYLEVA, L.V.,
red.; KHADASEVICH, Yu.G., mlad. red.

[Mechanization and automation of production; organization of work] Mekhanizatsiia i avtomatizatsiia proizvodstva; organizatsiia rabot. Moskva, Ekonomika, 1964.
214 p. (MIRA 18:1)

IOFFE, Isaak Shimilevich; YAMSHCHIKOV, Dmitriy Dmitriyevich; YERSHOV, P.R., vedushchiy redaktor; POLOSINA, A.S., tekhnicheskiy redaktor

[Simplified method of plotting norm charts in well drilling] Uproshchennyi metod rascheta normativnykh kart na burenie skvazhin. Moskva, Gos. nauchno-tekhn. izd-vo neftianoi i gorno-toplivnoi lit-ry, 1956. 56 p. (MLRA 9:10)
(Oil well drilling--Production standards)

IOFFE, I.Sh.; SMIRNOV, A.S.; PERSHINA, Ye.G., vedyshchiy redaktor; MUKHINA, E.A., tekhnicheskiy redaktor

[Practices in building oil derricks] Opyt industrial'nogo vyshkostroeniia. Moskva, Gos. nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1956. 86 p. (MLRA 10:5)
(Cranes, derricks, etc.)

KAMYSHEV, Sevast'yan Filippovich; IOFFE, I.Sh., red.; KOVALEVA, A.A., vedushchiy red.; POLOSINA, A.S., tekhn.red.

[Records and analysis of the fulfillment of norms in the petroleum industry] Uchet vypolneniia norm i ikh analiz v neftedobyvaiushchei promyshlennosti. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1958. 46 p. (MIRA 12:7)

(Petroleum industry--Standards)

ALIYEV, Kh.M., red.; IOFFE, I.Sh., red.; NEYMAN, R.B., red.; MORGUNOVA, G.F., vedushchiy red.; MUKHINA, E.A., tekhn.red.

[Handbook on repairing the "Stalinets-80" tractor and hoisting winches of tractors with standard time norms] Spravochnik po organizatsii remonta traktora "Stalinets-80" i lebedok traktora-pod"emnika s tipovymi normami vremeni. Moskva, Gos.nauchno-tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1960. 418 p.
(MIRA 13:7)

1. Moscow. Nauchno-issledovatel'skiy institut truda. TSentral'noye byuro promyshlennykh normativov po trudu.
(Tractors--Maintenance and repair)

PETROCHENKO, Petr Fedorovich, kand. ekon. nauk, red.; IOFFE, Isaak Shimelevich; KURASHOV, Viktor Andreyevich; LATUKHINA, Ye.I., ved. red.

[Manual for the establishment of norms] Spravochnik normirovshchika. Pod obshchei red. P.F.Petrochenko. Moskva, Gostoptekhizdat, 1962. 321 p. (MIRA 15:4)
(Petroleum industry--Production standards)

L 18752-66 EWT(1)/T/EWA(h) IJP(c) AT

ACC NR: AP6003773 SOURCE CODE: UR/0181/66/008/001/0124/0130

AUTHORS: Gurevich, L. E.; Ioffe, I. V.; Kovnatskiy, A. M.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

70

B

TITLE: Excitation of galvanomagnetic and coupled galvanomagnetic-acoustic waves in an electric field

SOURCE: Fizika tverdogo tela, v. 8, no. 1, 1966, 124-130

TOPIC TAGS: galvanomagnetic effect, sound propagation, acoustic wave, semiconductor carrier, carrier density, alternating electromagnetic field, piezoelectric crystal

21,44,55 21,44,55

ABSTRACT: The article deals with the instabilities that can develop in semiconductors placed in a strong electric field, if the carrier density is not uniform, as a result of the occurrence of galvanomagnetic waves which were defined and described by the authors earlier (FTT v. 4, 2641, 1962). The conditions under which instabilities arise in different types of constant and alternating fields are de-

2

Card 1/2

L 18752-66

ACC NR: AP6003773

0

termined. It is shown that coupled galvanomagnetic and acoustic waves can arise in piezoelectric semiconductors even if the drift velocity is lower than the velocity of sound. The galvanomagnetic waves attenuate little in homogeneous crystals and are independent of the external field. Weakly damped waves are possible also in the absence of a magnetic field in intrinsic semiconductors. If the inhomogeneity is transverse to the electric field, the instability of the galvanomagnetic waves occurs only in a fixed interval of values of the external field and does not occur in strong fields. In the presence of galvanomagnetic waves, the semiconductor becomes less dissipative and sound waves can be propagated in it even in the presence of high viscosity. Numerical estimates of the characteristic length of the inhomogeneity ($L < 10$) show that these phenomena are realizable in CdS and GaAs crystals. Orig. art. has: 11 formulas.

SUB CODE: 20/ SUBM DATE: 03Jul65/ ORIG REF: 002/ OTH REF: 001

Card 2/2

44123

S/181/62/004/010/001/063
B108/B186

24.7700
24.2600

AUTHORS: Gurevich, L. E., and Ioffe, I. V.

TITLE: Current instabilities in semiconductors [1]

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1962, 2641-2646

TEXT: Current instabilities in semiconductors with intrinsic conductivity can arise when an electric (E_z) and a magnetic field are applied. If these are not parallel, instabilities will set in as soon as the fluctuations of the transverse Hall current and consequently of the local carrier concentration become too strong to be averaged out by diffusion. The criterion for current instabilities to arise in a thin plate (surface recombination dominant) is

$$\left\{\frac{eE_z d^2}{T}\frac{D_-D_+}{D_-+D_+}\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)\left[\gamma N+\frac{\gamma' eE_z H_y}{2TH}\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)\right]^{-1}\right\}^2\times$$
$$\times\frac{H_y}{2H}\left\{h_z\frac{\pi^2 d^2}{L_y L_z}-h_y\frac{\pi^2 d^2}{L_z^2}+2h_y\left[\gamma N+\frac{\gamma' eE_z H_y}{2TH}\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)\right]^{-1}\frac{D_-+D_+}{D_-D_+}t\right\}>1$$

Card (1/4)

[1] see S/181/62/004/010/051/063

The frequency of such current oscillations is

$$\omega=\left(\frac{H_y}{H}\right)^2\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)^3\left(\frac{eEd}{T}\right)^3\frac{D_-D_+}{D_-+D_+}\left\{h_z\frac{\pi^2}{L_yL_z}-h_y\frac{\pi^2}{L_z^2}+\right.$$
$$\left.+h_y\left[\gamma N+\frac{\gamma' eEH_y}{2TH}\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)\right]\frac{D_-+D_+}{dD_-D_+}\right\}\times$$
$$\times\left\{\left[\gamma Nd+\frac{\gamma' eEdH_y}{2TH}\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)\right]\frac{D_-+D_+}{D_-D_+}\right\}^{1/2}\times$$
$$\times\left\{\left[\frac{\gamma Nd+\frac{\gamma' eEdH_y}{2TH}\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)}{\frac{D_-D_+}{(D_-+D_+)}}\right]^2+\left(\frac{eE_zdH_y}{TH}\right)^2\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)^2\right\}^{-1},$$

provided that $H_y \ll H_z$, $\frac{eH\tau}{mc} = \Omega\tau \ll 1$, where τ is the electron (hole) relaxation time. $D_\pm$ is the diffusion coefficient for electrons and holes, respectively, $D'_\pm$ are the Hall diffusion coefficients. d is the thickness of the plate in the x-direction. $\vec{h}$ is the unit vector in the direction of $\vec{H}$, L_y and L_z are the length and the width of the plate, γ is the recombination coefficient for centers in the surface layer, γ' is the recombination coefficient for electrons (holes) with the charges $\pm e\nu = \pm \frac{\varepsilon T E_{0x}}{2\pi e d}$ that accumulate when a field is present near the surface, and arriving per cm^2. When the electrical and magnetic fields are parallel, and when incident light produces additional carriers, the condition for current oscillations of the frequency

$$\omega = \frac{eE_z d\pi^2}{TL_yL_z}\frac{D_-D_+}{D_-+D_+}\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)\left[\frac{D_-D_+}{\gamma Nd(D_-+D_+)}\right]^{1/2}$$

to arise is

$$\frac{j_0 eE_z d^2\pi^2}{2TL_yL_z}\left(\frac{D'_-}{D_-}-\frac{D'_+}{D_+}\right)\left[\frac{D_-D_+}{\gamma^2N^2(D_-+D_+)}\right]>1,$$

provided that volume charges can be neglected and that $n_+ = n_-$.

Current instabilities in semiconductors

S/181/62/004/010/001/063
B108/B186

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: April 6, 1962

Card 4/4

41156

24.7700
24.2600

S/181/62/004/010/051/063
B102/B112

AUTHORS: Gurevich, L. E., and Ioffe, I. V.

TITLE: Some problems of the current in stability in semiconductors

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1962, 2964-2970

TEXT: This is the continuation of an earlier paper (FTT, v. 4, no. 10, 1962, 2637) in which the conditions for the occurrence of current instabilities in intrinsic semiconductors were studied. It has been found that if $j = j_z$ or if the face parallel to z is illuminated, an instability occurs at $h_y = H_y/H$. Further properties of this instability are studied. A study of the instability in the case of volume recombination of the carriers shows that in this case the field E_z applied to the semiconductor plate must be stronger, in order to cause self-excited oscillations, than is necessary without volume recombination. A study of the instability boundaries at high h_y shows that the instability occurs only in the angular interval 0.5-20° between electric and magnetic field direction. For a

Card 1/2 S/181/62/004/010/001/063

Some problems of the current ...

S/181/62/004/010/051/063
B102/B112

strong magnetic field it is proved that self-excitation occurs only within a certain angular interval between electric and magnetic field. Further, the effect of the sample dimensions on the self-excitation conditions is studied. It is shown that oscillations occurring as a result of the presence of a Hall field can be extinguished by illuminating the lateral faces and that, conversely, illumination-induced oscillations can be extinguished by a Hall field. Finally, the self-excitation of oscillations in the case of different concentrations of positive and negative carriers is studied and the conditions for the occurrence of such oscillations are given.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: June 27, 1962

Card 2/2

S/057/63/033/002/022/023
B108/B186

AUTHOR: Ioffe, I. V.

TITLE: On the theory of fluctuations in magnetohydrodynamics

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 33, no. 2, 1963, 253 - 255

TEXT: The theory of the fluctuations of a conductive liquid in an external magnetic field can be established similarly to the theory of the hydrodynamic fluctuations put forward by L. D. Landau and Ye. M. Lifshits (ZhETF, 32, 618, 1957). The results for a conductive liquid in a magnetic field are similar to those of hydrodynamics except for a "magnetic" term

$$\int d^3r \, \frac{\nu_m}{4\pi T} \, \mathrm{curl}\, \vec{H} (\mathrm{curl}\, \vec{H} + \mathrm{curl}\, \vec{H}^{fluct})$$

where ν_m is the magnetic viscosity. The extinction coefficient of a conducting liquid in an external magnetic field rises rapidly at frequencies equal to those of the entropy, magnetohydrodynamic, and magnetoacoustic waves.

Card 1/2

On the theory of fluctuations... S/057/63/033/002/022/023
B108/B186

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute imeni A. F. Ioffe AS USSR, Leningrad)

SUBMITTED: July 7, 1962

GUREVICH, L.E.; IOFFE, I.V.

Theory of current instability in semiconductors and semimetals.
Fiz. tver tela 5 no.9:2674-2681 S '63. (MIRA 16:10)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR, Leningrad.

ACCESSION NR: AP4013503 S/0181/64/006/002/0445/0455

AUTHORS: Gurevich, L. E.; Ioffe, I. V.

TITLE: Theory of current instability in semiconductors exhibiting impact ionization

SOURCE: Fizika tverdogo tela, v. 6, no. 2, 1964, 445-455

TOPIC TAGS: current instability, semiconductor, impact ionization, ionization, electrical field, magnetic field, carrier concentration, recombination, intrinsic semiconductor

ABSTRACT: The authors have investigated the current instability in an intrinsic semiconductor in parallel electrical and magnetic fields under conditions such that impact ionization by the electrical field leads to the development of a transverse gradient in the concentration of carriers, which combine at the surface. A slight unparallelism of the electrical and magnetic fields may lead to amplification or extinction of the instability, depending on the direction of the applied field. The authors examined both platy and cylindrical samples, and they have

Card 1/2

ACCESSION NR: AP4013503

determined the critical field at which instability appears and the frequency of the amplified oscillation that arises. They found that the instability is generally drifting in character, but when mobilities are equal it is absolute. Spiral waves arose in the cylindrical sample at fields above the critical value. Orig. art. has: 1 figure and 17 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad (Physical and Technical Institute AN SSSR)

SUBMITTED: 03Aug63 DATE ACQ: 03Mar64 ENCL: 00

SUB CODE: PH NO REF SOV: 010 OTHER: 009

Card 2/2

[illegible] S/0181/64/006/010/2926/293?

AUTHOR: Gurevich, L. E.; Ioffe, I. V.

TITLE: Galvanomagnetic waves and spontaneous current oscillations in semiconductors and semimetals

SOURCE: Fizika tverdogo tela, v. 6, no. 10, 1964, 2926-293?

TOPIC TAGS: semiconductor, semimetal, galvanomagnetic wave, current [illegible] Hall effect

ABSTRACT: Galvanomagnetic waves are produced in solid conductors [illegible] whenever periodic density [illegible] gradients are produced [illegible] magnetic field. [illegible]

[illegible] tributions, current densities, and field gradients are produced by external application of an electric field and a magnetic field. Estimates [illegible] for several field configurations (no magnetic field, magnetic [illegible] magnetic field and electric field [illegible] damped galvanomagnetic waves with [illegible]

L 12444-65
ACCESSION NR: AP4046599

wavelengths that can be realized in solids under laboratory conditions ($\lambda \leq 10$ cm) are feasible only in semiconductors or semimetals [illegible] frequencies [illegible] 10^{8} sec^{-1}). If a carrier density gradient is [illegible] direction perpendicular to the elec- [illegible] oscillations can be [illegible] oscillations. If the electric field [illegible] electromagnetic oscillations [illegible] the electric current [illegible] theoretical analysis [illegible] particular, that instability [illegible] illumination) can sometimes be [illegible] for example, the Hall effect [illegible]

[illegible] Institut im. A. F. Ioffe AN SSSR [illegible] AN SSSR)

2

AP4009943 S/0057/64/034/001/0189/0190

AUTHOR: I.V. Ioffe

TITLE: On the theory of plasma compression by electromagnetic waves

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.1, 1964, 189-190

TOPIC TAGS: plasma compression, electromagnetic wave in plasma, electromagnetic wave plasma compression, plasma free energy, plasma

ABSTRACT: An expression is written for the free energy of a definite quantity of plasma in the presence of a constant uniform magnetic field and plane polarized electromagnetic waves. This expression is valid provided the waves penetrate the plasma and are not strongly absorbed therein. If the electromagnetic waves have sufficient amplitude, a reduction of the volume of the plasma will be energetically favored provided

$$f_p^2 < 3f^2 - f_L^2 < f_{p'}^2,$$

where f_p is the plasma (Langmuir) frequency before compression, $f_{p'}$ is the plasma frequency after compression, f_L is the Larmor frequency, and f is the frequency of

Card 1/2

AP4009943

the waves. For certain values of the temperature, density, and wave frequency (of which the numerics but not the units are given), the Larmor frequency required for compression agrees with data of M.Ericson (J.Phys.et rad.,23,145, 1962). Ericson's theoretical calculations, however, are said to be erroneous, because of his use of an incorrect expression for the energy of the oscillating electromagnetic field in a dispersive medium. Orig.art.has: 8 formulas

ASSOCIATION: Fiziko-tekhnicheskiy institut im.A.F.Ioffe AN SSSR, Leningrad (Physicotechnical Institute, Academy of Sciences, SSSR)

SUBMITTED: 06Aug63 DATE ACQ: 10Feb64 ENCL: 00

SUB CODE: PH NR REF SOV: 004 OTHER: 001

Card 2/2

L 6335-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JD
ACCESSION NR: AP5019877 UR/0181/65/007/008/2527/2529

AUTHOR: Ioffe, I. V.; Kovnatskiy, A. M. 55

TITLE: Explanation of observed oscillations in the field distribution in germanium with injecting contact

SOURCE: Fizika tverdogo tela, v. 7, no. 8, 1965, 2527-2529

TOPIC TAGS: germanium, electric field, semiconductor carrier, carrier density, statistic distribution

ABSTRACT: It is shown, on the basis of an earlier result by one of the authors (I. V. Ioffe, with L. E. Gurevich, FTT v. 6, 2926, 1964) that the oscillations in the distribution of the electric field inside a sample of n-germanium placed in a constant mutually perpendicular electric and magnetic fields when holes are injected from one of the contacts, observed in experiments by Y. Migai and F. Nakashima (J. Phys. Soc. Japan v. 18, 1219, 1963) and others, are due to the inhomogeneity of the carrier distribution. The proof is based on an analysis of the differential equations for the density of the positive and negative carriers under the conditions of the material in question. A frequency of approximately 3×10^9 sec^{-1}, a field of approximately 300 Oe, and an injection coefficient of approximately 1/3 are obtained from these calculations, and agree with the values observed experi-

Card 1/2

0902 0174

L 6335-66

ACCESSION NR: AP5019877

55

mentally. "The authors thank L. E. Gurevich for a discussion of their work." Orig. art. has: 3 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. I. F. Ioffe AN SSSR, Leningrad (Physicotechnical Institute AN SSSR) 55

SUBMITTED: 15Mar65 ENCL: 00 SUB CODE: SS

NR REF SOV: 001 OTHER: 004

BC

Card 2/2

L 21235-66 EWT(1)/EEC(k)-2 IJP(c) AT

ACC NR: AP6003818 SOURCE CODE: UR/0181/66/008/001/0284/0286

AUTHOR: Gurevich, L. E.; Ioffe, I. V.

ORG: Physicotechnical Institute im. A. F. Ioffe AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR) 67 B

TITLE: Current oscillations under acoustic stability

SOURCE: Fizika tverdogo tela, v. 8, no. 1, 1966, 284-286

TOPIC TAGS: acoustic property, piezoelectric crystal, crystal oscillation, semiconductor carrier, semiconductor crystal, cadmium sulfide

21, 44, 55

ABSTRACT: Although the condition for acoustic instability in piezoelectric semiconductors in the external electric field has already been determined, the associated current oscillations in an external circuit were never investigated before. It is shown in the present paper that a piezoelectric semiconductor can serve as a generator of current oscillations. The expression for the current is derived from the linearized equations for the displacements of the lattice, the electric field, and the carrier density. The frequency of the oscillations is determined. In the case of CdS with $n \approx 10^{16}$ cm^{-3} and $T \approx 4 \times 10^{-14}$ erg the frequency is found to be 1.5×10^{-11} sec^{-1}. The temperature rise of the crystal is negligible. Multiple reflections and other considerations make the generation of frequencies

2

Card 1/2

L 21235-66

ACC NR: AP6003818

0

above 3×10^9 sec^{-1} difficult to attain. Orig. art. has: 5 formulas.

SUB CODE: 20/ SUBM DATE: 10Aug65/ ORIG REF: 001/ OTH REF: 001

Card 2/2 dda

L 41722-66 EWT(l) IJP(c) AT

ACC NR: AP6018523 SOURCE CODE: UR/0181/66/008/006/1661/1669

AUTHOR: Gurevich, L. E.; Ioffe, I. V.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

78

B

TITLE: On the instability of nonequilibrium current or field distribution

SOURCE: Fizika tverdogo tela, v. 8, no. 6, 1966, 1661-1669

TOPIC TAGS: semiconductor plasma, plasma instability, plasma magnetic field, electron distribution, carrier density, free path, crystal anisotropy

ABSTRACT: This is a continuation of earlier work by the authors (FTT v. 6, 2226, 1964 and earlier) dealing with the instability of a plasma situated in a magnetic field which is parallel to the electric field in the presence of a carrier-density gradient. It is shown in the present article that the gradient instability occurs not only in the presence of a gradient in the density of the carriers themselves, but also in the presence of any spatial inhomogeneity of any parameter characterizing the conducting medium (such as mobility), or the distribution of the current or the electric and magnetic fields. If the density of the carriers of both polarities is unequal, or in the case of anisotropic semiconductors, the presence of a magnetic field is still essential, but in the case of instability in the semiconductors with carriers of the same sign, gradient instability can arise in the presence of an electric field only when the collision frequency exceeds the frequency of the instability process. A

Card 1/2

L 41722-66

ACC NR: AP6018523

general criterion for the occurrence of gradient instability is derived for several particular cases in which the external fields or the mean free paths are inhomogeneous. Particular cases considered are the frequency and increment of galvanomagnetic waves in intrinsic as well as impurity semiconductors, instability in inhomogeneous and alternating electric or magnetic fields and for inhomogeneous mean free paths, and current instability in anisotropic crystals. Orig. art. has: 8 formulas.

SUB CODE: 20/ SUBM DATE: 10Aug65/ ORIG REF: 017/ OTH REF: 005

hs

Card 2/2

L 04416-67 EWT(1)/EWP(m) WW

ACC NR: AP6034274 SOURCE CODE: UR/0386/66/004/007/0271/0273

AUTHOR: Ioffe, I. V.

6P3

ORG: Physicotechnical Institute im. A. F. Ioffe, Academy of Sciences SSSR (Fizikotekhnicheskiy institut Akademii nauk SSSR)

TITLE: Contribution to the theory of shock waves in nonconducting media in the presence of an electric field

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 4, no. 7, 1966, 271-273

TOPIC TAGS: shock wave formation, compression shock wave, rarefaction wave, electric field

ABSTRACT: Since the theory of shock waves usually does not deal with the case when an external electric field is present, the author shows that in the presence of an external electric field a low-intensity shock wave can be a rarefaction wave. This is done by analysis of the system of boundary conditions for low-intensity waves and a purely longitudinal electric field in gases or polar liquids. Such a rarefaction shock wave can be formed, for example, from a sound wave, in organic liquids in electric fields near 10 kv/cm, which is much less than the breakdown field. The reason why the electric field becomes stronger in a rarefaction shock wave and weaker in a compression wave is explained. The author thanks A. I. Sayet for a discussion of the result. Orig. art. has: 3 formulas.

SUB CODE: 20/ SUBM DATE: 25Jul66/ ORIG REF: 004/ OTH REF: 002

[illegible] 1/1 mb

ACC NR: AP6033548 SOURCE CODE: UR/0181/66/008/010/2887/2891

AUTHOR: Gurevich, L. E.; Ioffe, I. V.; Kovnatskiy, A. M.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Excitation of oscillations in semiconductors at strong inhomogeneity of the current density

SOURCE: Fizika tverdogo tela, v. 8, no. 10, 1966, 2887-2891

TOPIC TAGS: semiconductor carrier, minority carrier, semiconductor theory, solid state plasma, plasma oscillation, current stabilization

ABSTRACT: This is an extension of earlier work by the authors (FTT v. 8, 1234, 1966 and earlier) dealing with current instability in semiconductors, to include cases when the wavelength of the oscillations in the semiconductor is not much smaller than the inhomogeneity causing the instability. This makes it necessary to construct a linear theory for the self excitation of the oscillations in the semiconductor for the case when the semiclassical approach used in the earlier papers is no longer valid. Conditions are derived for the occurrence of growing oscillations when the inhomogeneity is brought about by a change in the transverse cross section of the sample, and the frequency of the oscillations is determined. Although the theory is not sufficiently

Card 1/2

ACC NR: AP6033548

accurate to permit comparison with experiment, it does explain why current oscillations occur only when the cross section changes along the length of the sample and minority carriers are injected (the "sogicons" observed by M. Kikuchi and Y. Abe, J. Phys. Soc. Japan 17, 881 and 1268, 1962), and do not occur in a semiconductor with only one type of carrier (electron or hole). The reason why a magnetic field parallel or transverse to the current can suppress the oscillations is also explained. Orig. art. has: 9 formulas.

SUB CODE: 20/ SUBM DATE: 07Feb66/ ORIG REF: 004/ OTH REF: 005

Card 2/2

ACC NR: AP6036970 (A, N) SOURCE CODE: UR/0181/66/008/011/3274/3279

AUTHOR: Ioffe, I. V.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Sound vibrations in dielectrics in an external electric field

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3274-3279

TOPIC TAGS: dielectric crystal, sound propagation

ABSTRACT: In dielectrics, the role of electron-phonon interaction, which causes the variation and excitation of sound vibrations in an external electric field, is a minor one. The article shows, however, that in the absence of current carriers an external electric field may change the velocity of propagation of a sound wave and excite increasing sound vibrations. A study of sound vibrations in solid (nonpiezo- and piezoelectric) and liquid dielectrics showed that this change of sound velocity may be considerable and that a new, transverse branch of vibrations arises in the external electric field. The latter was found to change the heat capacity of the dielectric. It is also shown that the excitation of sound vibrations is possible in alternating fields. Author is deeply grateful to B. L. Gel'mont and A. L. Efros for discussing the results. Orig. art. has: 8 formulas.

SUB CODE: 20/ SUBM DATE: 18Feb66/ ORIG REF: 013/ OTH REF: 006

Card 1/1

ACC NR: AP7003893 SOURCE CODE: GE/0030/67/019/001/0051/0056

AUTHOR: Ioffe, I. V.

ORG: A. F. Ioffe Physico-Technical Institute, Academy of Sciences of the USSR, Leningrad

TITLE: Theory of lattice oscillations in dielectric crystals in an external electric field

SOURCE: Physica status solidi, v. 19, no. 1, 1967, 51-56

TOPIC TAGS: crystal lattice, dielectric crystal, semiconductor crystal, transverse wave, electric field, oscillation, ferroelectric property, ferroelectric resonance, spin resonance, acoustic wave

ABSTRACT: A study is made of the change in the optical frequency of dielectric crystals due to an external electric field. The properties of the ferroelectric resonance in the presence of this field are also examined. It is shown that a new resonance of the spin and transverse acoustic waves can take place. The adjustments to the frequencies of the coupled waves are found, and the parametric excitation of coupled waves is considered. The author acknowledges his indebtedness to B. L. Gelmont, A. A. Klochikhin, I. Ya. Kornblit, and B. I. Shklovskiy for their helpful discussion of his work. Orig. art. has: 21 equations. [Author's abstract] [SP]

Card 1/1 SUB CODE: 20/SUBM DATE: 04Jul66/ORIG REF: 011/OTH REF: 006/

ACC NR: AP7005865 SOURCE CODE: UR/0181/66/008/012/3654/3655

AUTHOR: Ioffe, I. V.

ORG: Physicotechnical Institute im. A. F. Ioffe, AN SSSR, Leningrad (Fiziko-tekhnicheskiy institut AN SSSR)

TITLE: Concerning one possibility of determining the piezoelectric characteristics of a crystal

SOURCE: Fizika tverdogo tela, v. 8, no. 12, 1966, 3654-3655

TOPIC TAGS: piezoelectric property, piezoelectric crystal, elastic wave, elastic scattering, line broadening, ferroelectric crystal

ABSTRACT: The author indicates that the piezoelectric parameters of a substance can be determined by measuring the width of the Mandel'shtam-Brillouin doublet, rather than measuring the electric parameters in the presence of mechanical stresses or vice-versa, which is the customary procedure. A justification of this method is presented by calculating the width of the Mandel'shtam-Brillouin doublet, and showing that it depends on the relative direction of the electric field and the difference in the wave vectors of the incident and scattered waves. The change in the width of the doublet when the external field is reversed is determined. It is seen from this change that by measuring the width of the Mandel'shtam-Brillouin doublet for two different directions of the magnetic field it is possible to determine the values of the piezoelectric characteristics of the crystal. Estimates show that the greatest change in width

Card 1/2

of the doublet is expected in ferroelectric crystals. The author thanks B. L. Gel'mont and A. A. Klochikhin for valuable consultations. Orig. art. has: 4 formulas.

SUB CODE: 20/ SUBM DATE: 15Jun66/ ORIG REF: 005/ OTH REF: 001

Ioffe, I, Ya.

Effect of adding Khalloy cast iron on mechanical properties of castings at elevated temperatures. N. G. Girshovich and I. Ya. Ioffe. *Liteinoe Proizvodstvo* 1955, No. 7, 14-[illegible]. Tensile strength of irons contg. C 3.3, Mn 0.6, Si 2.5, P 0.02, and S 0.06% unalloyed and alloyed, resp., with 0.42% Cr and 0.32% Ni (modified with CaSi); 0.40% Cr and [illegible]% Ni; 1.05% Cr and 0.61% Ni and heated for 150 and 300 hrs. at 350-900° is given in diagrams indicating that the presence of Cr and Ni retards the softening effect of heating. This is connected with a comparative stability of the pearlitic matrix of the alloyed irons and graphitization of unalloyed. Creep strength results run for 10,000 hrs. parallel to those of the tensile testing. On the basis of data collected, a set of diagrams for detg. the structure of these irons as a function of Si and C is given. J. D. Gat

(1)

Of 9

IOFFE, Iosif Zusimovich; SEDOVA, A.P., red.

[Analysis of the production and financial operations of automotive transportation units; collection of problems and exercises] Analiz proizvodstvenno-finansovoi deiatel'nosti avtokhoziaistv; sbornik zadach i uprazhnenii. Moskva, Transport, 1964. 123 p. (MIRA 17:12)

1. IOFFE, K. G.

2. USSR (600)

4. Peptides

7. Reagents for selectiva separation of thyrosin-containing peptides from proteins. Biokhimiia, 17, no.6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

IOFFE, K.G.

The structure of the tyrosine-containing part of the peptide chain of silk fibroin. K. G. Ioffe (V. M. Molotov Med. Inst., Tashkent). *Biokhimiya* 19, 496-508(1954).—Four specific reagents were built up for the present study. The amino acids dealt with were designated as follows: alanine—A; tyrosine—T; serine—S; glycine—G; valine—V. By applying successively two methods based on different principles it was possible to sep. the peptides in the incompletely hydrolyzed dialysis of silk and thereby to study the structure of 19 compds. of which 16 were peptides. The structure of a large part of the peptides of silk fibroin was found to have the following arrangement: *AGAG-TG-AGAG-VG-AGAG-SG-*, which constitutes $1/3$-$1/2$ of the mol. of silk fibroin. It is proposed that the structure of the greater part of the silk fibroin mol. ($1/2$-$3/4$) principally corresponds to the formula $(AGAG\text{-}XG)_n$, where *X* is some amino acid other than G or A and which may differ from section to section. B. S. Levine

Ioffe, A G

Hydrolysis of elastin diluted with alkali and basic copper sulfate. K. G. Ioffe and V. M. Sorokin (V. M. Molotov Med. Inst., Tashkent). *Biokhimiya* 19, 652-5(1954).—Five g. air-dried elastin and 2.5 g. basic copper sulfate were suspended in 100 ml. 0.4*N* $Ba(OH)_2$, placed in the incubator, and automatically stirred for 48 hrs.; thereafter hydrolysis proceeded without stirring. At intervals of 24, 40, 50, 64, and 72 hrs. samples were taken for analysis. Twenty ml. was neutralized with AcOH forming a ppt. (fraction *A*), and a filtrate (fraction *B*). Further fractionation was accomplished as described. N detns. were made by the Kjeldahl method. Another series of somewhat similar expts. was performed in which total N, amino N, and P_2O_5 detns. were made. The results of the hydrolysis are large polypeptides. Low-mol. hydrolytic products are few. Two types of fractions (A_2 and *B*) are distinguishable from one another by their properties and constitution. Each fraction represents a mixt. of polypeptides of similar properties. The higher-mol. fraction (A_1) gives rise to fractions A_2 and *B*.

B. S. Levine

[illegible] ride; phthalylglycyl-[illegible]-alanyl glycine and glycine; phthaloyl-dl-alanyl [illegible] Comparative chromato- dl-alanyl glycyl-dl-alanyl glycine. The synthesized peptides, [illegible] studies were also made. [illegible] glycine and also dl-glycylalanyl- [illegible]

Chromatographic comparison of the natural peptides of [illegible] and of their synthetic analogs. K. [illegible] Ioffe. Biokhimiya (U.S.S.R.) 21, 337-40(1956)(English translation).—[illegible] 50, 13634b. B. M. H.

IOFFE, K. G. Doc Chem Sci -- (diss) "On the structure of silk fibrion." Mos, 1957. 24 pp 22 cm. (Academy of Sciences USSR. Inst of Organic Chemistry im N.D. Zelinskiy), 200 copies (KL, 21-57, 99)

IOFFE, K. G.

"Particulars on the location of 18 amino-acids in the tyrosine bearing peptide"

report presented at the 10th All-Union Conf. on Highly Molecular Compounds, Biologically Active Polymer Compounds, Moscow, 11-13 June 1958. (Vest. Ak Nauk SSSR, 1958, No. 9, pp. 111-113)

TURAKULOV, Ya.Kh.; IOFFE, K.G., prof., otv.red.; RUSINOVA, G.I., red. izd-va; GOR'KOVAYA, Z.P., tekhn.red.

[Iodine metabolism and the thyroid hormones] Obmen ioda i tireoidnye gormony. Tashkent, Izd-vo Akad.nauk Uzbekskoi SSR, 1959. 268 p. (MIRA 12:9)
(IODINE METABOLISM) (THYROXINE)

SOROKIN, V.M.; IOFFE, K.G.

A method for quantitative fractionation of labelled compounds in a simple test of a tissue preparation. Izv. AN Uz. SSR. Ser. med. no.2: 33-36 '59. (MIRA 12:7)

1. Institut krayevoy meditsiny AN UzSSR. Tashkentskiy gosudarstvennyy meditsinskiy institut.
(PHOSPHORUS--ANALYSIS) (HISTOCHEMISTRY)

IOFFE, K.G.; LAMM, G.Ya.; MUKHAMEDZIYEV, M.M.

A general method for mild partial hydrolysis of scleroproteins and its application to silk fibroin. Biokhimiia 24 no.6:1109-1112 N-D '59. (MIRA 13:5)

1. Institute of Polymers, Academy of Sciences of the Uzbek S.S.R. and the Pharmaceutic Institute, Ministry of Health, Tashkent.
(HYDROLYSIS) (FIBROIN) (ALBUMINOIDS)

IOFFE, K. G., and MUKHAMEDZHYEV, M. M. (USSR)

"Characterization of some Peptides from the Silk Fibroin."

Report presented at the 5th International Biochemistry Congress, Moscow, 10-16 Aug 1961

AULOV, D.M.; ISLAMBEKOV, R.K.; TURAKULOV, Ya.Kh.; IOFFE, K.G.

Effect of epiphysectomy on the morphology and functional activity of the thyroid gland. Uzb.biol.zhur. 7 no.2:16-20'63.
(MIRA 16:8)

1. Institut krayevoy eksperimental'noy meditsiny AN UzSSR.
(THYROID GLAND) (PINEAL BODY—SURGERY)

Ioffe, Kh.M.

PHASE I BOOK EXPLOITATION SOV/3959

Oyks, Grigoriy Naumovich, Professor, Doctor of Technical Sciences, and Khaya Mendelevna Ioffe

Proizvodstvo stali; raschety (The Making of Steel; Calculations) Moscow, Metallurgizdat, 1960. 319 p. Errata slip inserted. 7,250 copies printed.

Scientific Ed.: Grigoriy Naumovich Oyks, Professor, Doctor of Technical Sciences; Ed. of Publishing House: S.I. Venetskiy; Tech. Ed.: L.V. Dobuzhinskaya.

PURPOSE: This textbook is intended for students of industrial and metallurgical tekhnikums and may also be of use to engineers and technicians of metallurgical plants and planning organizations, as well as to students of metallurgical schools for higher technical education.

COVERAGE: The book reviews calculations for the charge of basic and acid, single or double slag, open-hearth furnaces operating with or without oxygen. Thermal calculations of open-hearth furnace performance, the simplified design of regenerators (including the draft check) and methods of compiling material and

Card ~~1/6~~

thermal balances of melting in converters and rotary furnaces are discussed. Design data for open-hearth furnaces of 30 to 500 tons of charge weight using various types of fuel are given. Information on metallurgical and heat engineering calculations as well as sample designs of plant equipment are also presented. The assistance of M.M. Trubetskov and N.G. Veselkov is acknowledged. There are 35 references: 34 Soviet and 1 English.

TABLE OF CONTENTS:

Introduction 5

PART I. THE MAKING OF STEEL IN OPEN-HEARTH FURNACES

Ch. I. Acid Open-Hearth Process 8
1. Calculation of the charge and thermal balance of acid open-hearth furnace in silicon reduction process 8
2. Calculation of the charge and thermal balance of acid open-hearth furnace in an activated process 19
3. Calculation of the charge and thermal balance of acid open-hearth furnace using oxygen for refining metal 27

OYKS, Grigoriy Naumovich, prof., doktor tekhn.nauk; IOFFE, Khaya Mendelevna; POZDNYAKOVA, G.L., red.izd-va; MIKHAYLOVA, V.V., tekhn. red.

[Steelmaking; calculations] Proizvodstvo stali; raschety. Izd.2., perer. i dop. Moskva, Metallurgizdat, 1964. 552 p. (MIRA 17:3)

IOFFE, L., mayor meditsinskoy sluzhby; GOL'DSHTEYN, G., mayor meditsinskoy sluzhby

Characteristics of medical services in air defense units. Tyl i snab.Sov. Voor.Sil 21 no.2:59-61 F '61. (MIRA 14:6)
(Medicine, Military)

ACC NR: AT6036571 SOURCE CODE: UR/0000/66/000/000/0183/0184

20

AUTHOR: Ioffe, L. A.; Stoyda, Yu. M.; Vasil'yeva, T. D.

ORG: none

TITLE: Dynamics of the functional state of the circulatory apparatus in athletes under conditions of limited motor activity [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 183-184

TOPIC TAGS: hypodynamia, cardiovascular system, nervous system, human physiology, space physiology

ABSTRACT: Prevention of the adverse effects of limited motor activity on the activity of the cardiovascular system is one of the most important problems of space physiology. Studies of hypokinesia of various durations have shown that exposure to this factor causes deterioration in the quality of circulatory apparatus regulation, this deterioration manifesting itself in autonomic nervous system shifts, decreased orthostatic tolerance, changes in capillary resistance, and so forth (A. L. Myasnikov et al., Yu. V. Vanyushina, Dietlein, Lamb et al., and others).

At the same time it has been shown that special physical exercises